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10/518,789

06/28/2005

Jens A. Hansen

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EXAMINER

OLADAPO, TAIWO

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/518,789 | Applicant(s) HANSEN ET AL. | |
| | Examiner TAIWO OLADAPO | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The response dated 06/28/2010 has been considered but is not persuasive, therefore, previous rejections are maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 – 8, 11 – 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge et al. (US 4,820,402) in view of Gentry (US 6,261,441).

6. In regards to claim 1 – 4, 11, 13, Partridge teaches the process of hydrocracking feedstock to form middle distillates using beta zeolites (abstract, column 2 lines 65 – 68). In Example 11, Partridge teaches using a matrix having catalyst B which comprises nickel-tungsten (Ni-W) hydrogenation component, beta zeolite having silica:alumina ratio of 30:1, and alumina support (column 12 line 55 – column 13 line 55). The alumina support is amorphous alumina according to the claimed limitation. Partridge teaches the zeolites of the invention can have a silica:alumina ratio of at least 50:1 (abstract) such as 100:1 or 200:1 which meets the claimed limitation (column 2 lines 39 – 40). Since the ion exchange capacity acidity index and the NH₃-TPD acidity index values are dependent on the silica:alumina ratio of the zeolite, they would overlap the limitations of the claim. Partridge does not recite the percentage of zeolite in the support matrix.

Gentry similarly teaches a process wherein beta zeolites can be used for hydrocracking to produce middle distillates (column 7 line 50 – column 8 line 65). Gentry teaches the catalyst support can comprise crystalline component such as beta zeolites and amorphous component such alumina, wherein the crystalline component is present at from 40 to 80% which overlaps the claimed range of the amount of zeolites present in the catalyst (column 8, lines 8 – 12 and lines 29 – 36). Correspondingly, the amorphous portion will be present at from 20% up to 60% by weight of the catalyst. In the case where the claimed ranges “overlap or lie inside ranges

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disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the percentage of crystalline materials taught by Gentry in preparing the catalysts of Partridge, as Gentry teaches suitable percentages of beta zeolites that can be used in the catalyst matrix.

7. In regards to claims 5 – 7, In Example 11, Partridge and Gentry teach the process wherein the hydrogenation components include metals such as nickel as stated above.

8. In regards to claim 8, Partridge and Gentry teach the process wherein the matrix can comprise from 20 up to 60% of amorphous inorganic oxide which overlaps the claimed range as previously stated.

9. In regards to claim 12, Partridge and Gentry teach the process. Partridge teaches in Example 11 a process wherein only a single type of catalyst (B) is used in the hydrocracking process to form middle distillates.

Claim Rejections - 35 USC § 103

10. Claim 1 – 8, 11 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge et al. (US 4,820,402) in view of Fragelli et al. (US 6,103,101)

11. In regards to claim 1 – 8, 11, 13, 14, Partridge teaches the process of hydrocracking feedstock to form middle distillates using beta zeolites (abstract, column 2 lines 65 – 68). In Example 11, Partridge teaches using a matrix having catalyst B which comprises nickel-tungsten (Ni-W) hydrogenation component, beta zeolite having silica:alumina ratio of 30:1, and alumina

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support (column 12 line 55 – column 13 line 55). The alumina support is amorphous alumina according to the claimed limitation. Partridge teaches the zeolites of the invention can have a silica:alumina ratio of at least 50:1 (abstract) such as 100:1 or 200:1 which meets the claimed limitation (column 2 lines 39 – 40). Since the ion exchange capacity acidity index and the NH₃-TPD acidity index values are dependent on the silica:alumina ratio of the zeolite, they would overlap the limitations of the claim. Partridge does not recite the percentage of zeolite in the support matrix.

Fragelli teaches a process of hydrocracking using zeolite hydrocracking catalyst having an amorphous alumina support and hydrogenation components such as nickel and tungsten similar to the invention of Partridge (column 7 lines 14 – 23), wherein the catalyst can have crystallinity ranging from 1 to 25% (column 7 lines 41 – 43) which overlaps the claimed ranges. Correspondingly the amorphous component of the catalyst will range from 26 to 75% by weight.

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the percentage of crystalline materials taught by Fragelli in preparing the catalysts of Partridge, as Fragelli teaches suitable percentages of beta zeolites that can be used in the catalyst matrix.

12. In regards to claim 12, Partridge and Fragelli teach the process. Partridge, in Example 11 teaches only a single type of catalyst (B) is used in the hydrocracking process to form middle distillates.

Response to Arguments

13. Applicants' arguments have been fully considered but they are not persuasive.

14. The applicants assert that the acidity of the beta zeolite catalyst does not depend on the molar ratio alone, but on the amount of acidic component in the catalyst matrix. The applicants persuasively show that the zeolite based catalyst in Example 11 of Partridge comprising a molar ratio of silica:alumina of 30 and comprising zeolite in the amount of about 50% would result in an acidity index of about 50. Using the same analysis, the Examiner asserts that combined references of Partridge and Gentry teaching silica: alumina ratios of 50:1, 100:1 and 200:1 and zeolite contents of from 40 to 80, which overlaps the claimed limitations as discussed in the rejections above, would also comprise acidity overlapping the claimed limitations. Similarly, the rejections over Partridge in view of Fragelli, teaching the silica: alumina ratios previously recited and percent of zeolite components within the claimed amount of from 1 to 25% would produce catalysts having the acidity of the claims.

15. The applicants argue that Partridge teaches producing higher boiling distillate range products and is not directed to the process of producing middle distillates as in the claim. The argument is not persuasive. As discussed above, Partridge teaches the process of hydrocracking feedstock to form middle distillates using beta zeolites (abstract, column 2 lines 65 – 68).

16. The applicants argue that beta zeolite is just one of six zeolites disclosed and that it has inferior properties and a person of skill in the art would use the preferred zeolites Y and ZSM 20. The teachings of Partridge are not limited to preferred components. Since the disclosure teaches using beta zeolites as catalyst of the invention, one of ordinary skill in the art would find it suitable.

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17. The applicants argue no influence on the performance beta zeolites is illustrated when using beta zeolites high silica: alumina ratio, and the only beta zeolite example in Partridge having ratio that is outside the claimed ratio of greater than 50, had inferior performance as compared to Y and ZSM 20 zeolites. The argument is not persuasive. As previously stated, Partridge teaches beta zeolites having silica:alumina ratios of at least 50 which meets the claimed limitations (See Abstract). Since the example cited by the applicants as having inferior performance are to beta zeolites having silica:alumina ratios that are outside the scope of Partridge's invention, a person of skill in the art would look to using beta zeolites having silica:alumina ratios of at least 50 for superior performance.

18. The applicants argue that no example in Partridge shows high ratio beta zeolite as claimed. This argument is not persuasive. The applicants are referred to the Abstract, which teaches beta zeolites having silica: alumina ratios of at least 50.

19. The applicants refer the Examiner to additional Experimental Data showing Example 11 of Partridge leads to an inferior selectivity of middle distillates. Again, the scopes of Partridge's teachings are not limited to Example 11. When beta zeolites having high silica to alumina ratios are used as taught by Partridge, and lower percentages of zeolite in the catalyst matrix are used according to the teachings of Gentry and Fragelli, the selectivity for middle distillates will be similar.

20. The applicants argue that the zeolite discussed in Fragelli having a particular unit cell size would be known to one of skill in the art, as referring to zeolite Y and not zeolite beta as claimed. The applicants' statements are mere allegations without a showing of any evidence of support.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAIWO OLADAPO whose telephone number is (571)270-3723. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TO

/Ellen M McAvoy/
Primary Examiner, Art Unit 1797